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SINGULARITIES OF THE ROCK MASS MOVEMENT DURING THE MINING OF CAVERNS

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Abstract

Rock mass movement in the area of salt domes in Poland was described by Kortas [2008]. The monograph presents some results obtained by dozens years long measurements carried out in underground salt mines Wapno, Solno, Kłodawa and in solution mining in Góra and Mogilno in Poland. Some of these results are singular. For example: an uplift above solution mining field in Góra and two-centric subsidence trough in Mogilno. In the paper this singular behaviour observed by the measurements is compared with some results of “3D and time” FEM geomechanic model research. Results of measurements carried out in conventional and solution mines and model researches allow to estimate some relationships among excavation volume convergence, volume deformation of the rock mass and volume of subsidence trough of the ground surface. These relationships depend on the shape of mining field and rock mass compressibility.

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